3d Weather Squadron

Integrity - Service - Excellence

Air Traffic Control Weather Certification

Current as of: 4 August 2010

Overview

- Requirement/References
- RGAAF (KGRK) Observations
- HAAF (KHLR) Observations
- Cooperative Weather Watch
- Visibility
- Significant Weather/Remarks
- METAR / TAF Code
- Weather Watches/Warnings/Advisories

Requirement

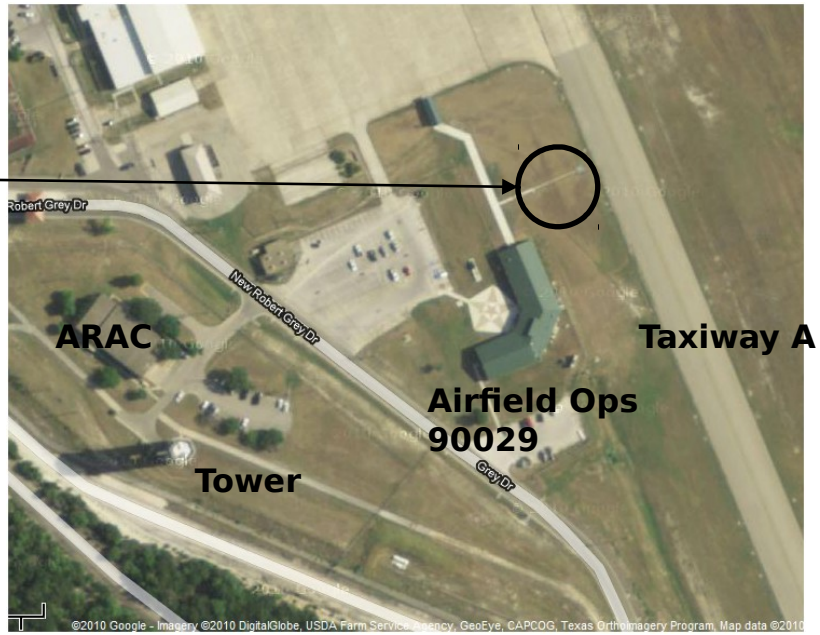
- **FM3-04.303** *Air Traffic Services Facility Operations, Training, Maintenance, and Standardization* (2-65.)
  - In accordance with **AR115-10 (AFI15-157)** *Weather Support for the U.S. Army*, local weather service authorities [3d Weather Squadron] will provide a practical training program to certify air traffic controllers as limited weather observers
  - Controllers shall perform weather observations as a secondary function; their **primary** function is ATC
- **AFMAN15-111** *Surface Weather Observations* (2.7.2.)
  - Weather technicians will task-certify ATC personnel to evaluate prevailing visibility values from the control tower
  - Weather technicians will also ensure ATC personnel

RGAAF (KGRK) Observations

- RGAAF weather station provides manual weather observations for **KGRK** IAW AFMAN15-111 (10Mar09)
  - A position qualified weather technician is responsible for observing, evaluating, and preparing METAR/SPECI observations 24/7
  - Sensors are used for “objective” elements (i.e., pressure, temperature, and wind)
  - Manual observing techniques are used for “subjective” elements (i.e., sky condition, visibility, and present weather)
  - SPECI criteria can be found in III Corps

RGAAF (KGRK) Observations

- Official observation point is north of Bldg 90029 (Airfield Ops) midpoint of sidewalk (vicinity of rain gauge)
  - Forecaster may go to end of sidewalk toward taxiway, but must first contact ATC Tower for approval
  - This location has a 360-degree view of the airfield complex, but hills, airfield buildings, and slope of the runway to the south through northwest restrict view of the sky and/or horizon and horizontal visibility in those directions
  - Glare from medium/high intensity lights may limit ability to make accurate reports of sky conditions at night

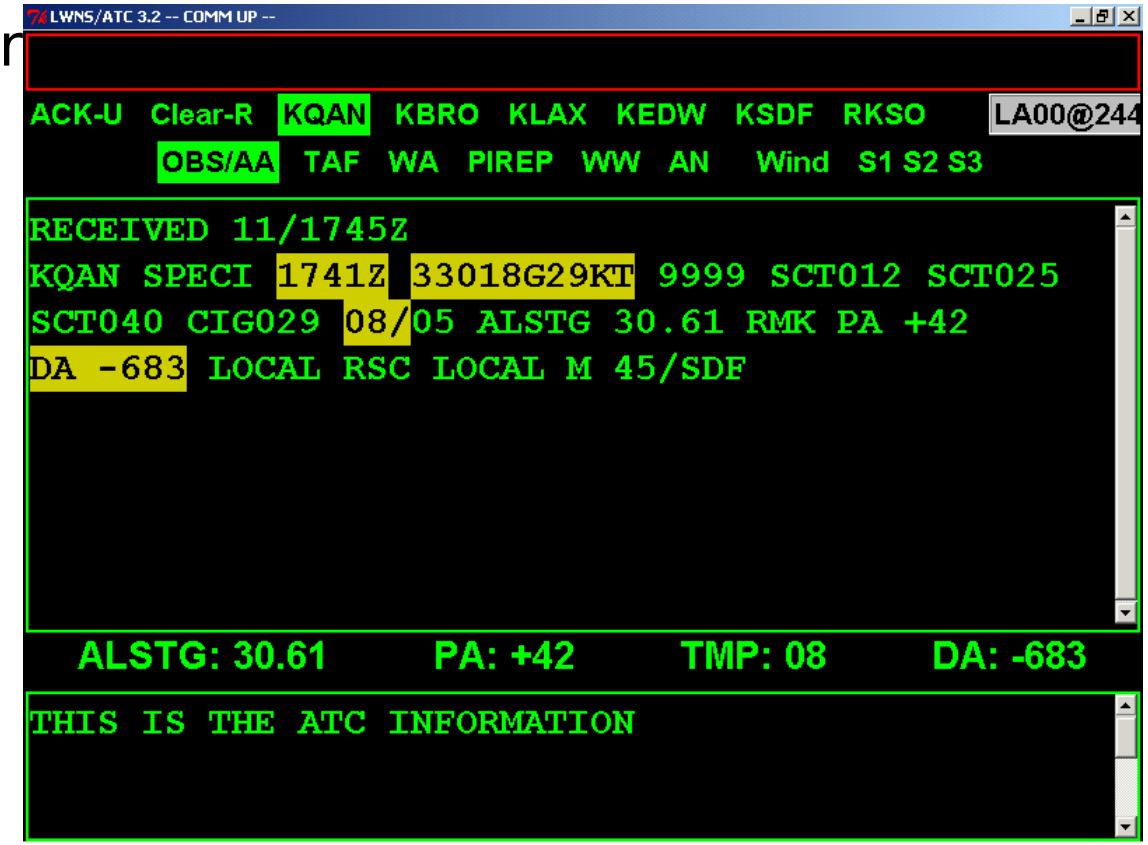


RGAAF (KGRK) Observations

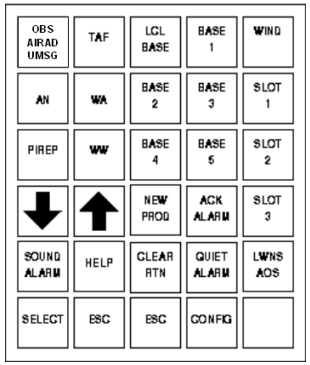
- Weather technicians conduct a basic weather watch (BWW)
  - Weather technicians cannot monitor weather continuously due to other operational duties
  - They may not detect and report all weather changes as they occur, so the BWW program IAW AFMAN 15-111 has been implemented to establish minimum requirements to ensure proper level of weather watch is maintained for flight safety
- **It is important tower personnel notify the weather station anytime they observe conditions different from the current observation or spot significant weather (i.e., tornadoes, lightning, hail, decreasing visibility/ceiling)**

RGAAF (KGRK) Observations

- KGRK observations are displayed on N-TFS terminals
  - **1** RGAAF Tower
  - **3** ARAC
  - **1** HAAF Tower

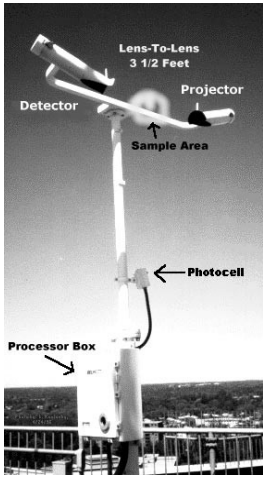

LWNS/ATC 3.2 -- COMM UP --
ACK-U Clear-R KQAN KBRO KLAX KEDW KSDF RKSO LA00@244
OBS/AA TAF WA PIREP WW AN Wind S1 S2 S3
RECEIVED 11/1745Z
KQAN SPECI 1741Z 33018G29KT 9999 SCT012 SCT025
SCT040 CIG029 08/05 ALSTG 30.61 RMK PA +42
DA -683 LOCAL RSC LOCAL M 45/SDF
ALSTG: 30.61 PA: +42 TMP: 08 DA: -683
THIS IS THE ATC INFORMATION

ATC Keypad



HAAF (KHLR) Observations

- HAAF (**KHLR**) observations fully automated
  - METAR/SPECI observations are collected disseminated via an Automated Surface Observing System (ASOS)
  - Inherit limitations especially during rapidly changing weather conditions when some delay in reporting cloud ceilings/visibilities may occur
  - An ASOS can only see what is directly over the sensors
- Under certain conditions, manual augmentation or backup to the ASOS at HLR may be required



HAAF (KHLR) Observations

- KHLR ASOS observations are displayed on terminals located in the HAAF Tower and the RGAAF weather station

AMPLE OF THE VDU SCREEN

5:17	08/12/97	HOME TOWN AIRPORT	
'	BKN075		
SY	21/2SM	TWR VSBY	3SM
:WX	HZ	SEA PRES	1024.7
MP/DP	20/17 C	REL HUM	43
ND	090/07 040V120	MAG WIND	110/07 070V140
' SET	30.15 DEN ALT 1000	PRES ALT	320

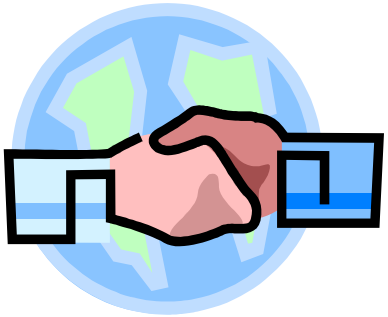
MARKS RMK AO2 TWR VIS 3 VIS 13/4V4

CI KXXX 121220Z 09007KT 040V120 2 1/2SM HZ BKN075 20/17 A3015
K AO2 TWR VIS 3 VIS 1 3/4V4

HAAF Tower Display

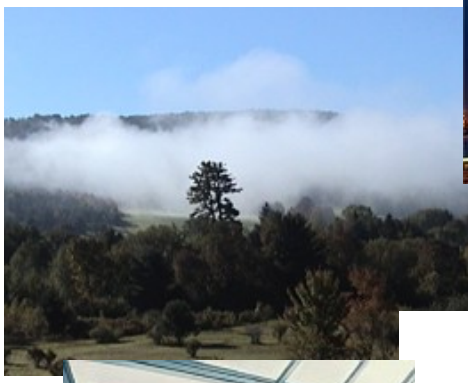
Cooperative Weather Watch

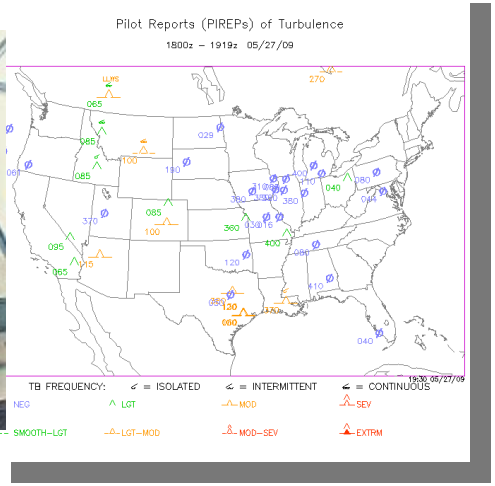
- AFMAN15-111 requires AF weather units to establish a ***cooperative weather watch*** with ATC and other appropriate base/post agencies



Cooperative Weather Watch

- **Of primary concern**:
  - Report of tower visibility different from prevailing surface visibility
  - Local PIREPs
  - Any occurrence of previously unreported weather conditions that could affect flight safety or be critical to the safety or efficiency of other local operations and resource**s**





Cooperative Weather Watch

- ATC directives (i.e., FAAO JO 7110.65, Air Traffic Control) require task certified control tower personnel to make tower prevailing visibility observations when the prevailing visibility at the usual point of observation, or at the tower level, is less than **4 miles**
- Control tower personnel task certified to take visibility observations are instructed by their agency to **notify** the weather technician when the observed tower prevailing visibility decreases to less than, or increases to equal or exceed **4 miles**

Cooperative Weather Watch

- Tower Personnel Will: **(as ATC duties permit)**
  - Relay sightings of any significant weather (i.e., tornadoes, funnel clouds, lightning, hail, low clouds, rapidly decreasing visibility, etc.)
  - **Relay runway changes (GRK has weather sensors on both ends of runway 15/33)**
  - Relay all PIREPs received
  - Contact weather when N-TFS or ASOS (HLR) terminals inop
  - Monitor PMSV frequency (UHF 306.5 or FM 41.2) during weather station equipment outages
  - Provide a radio check (PMSV) daily or upon request
  - Pass significant weather updates to aircrews through flight-following upon request

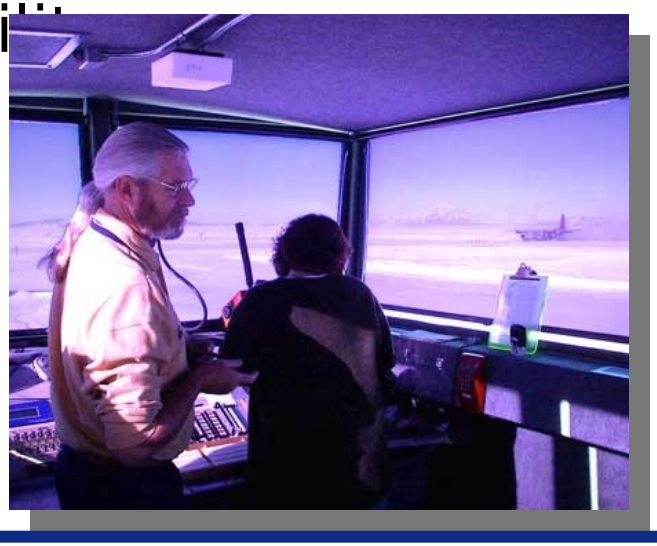
Cooperative Weather Watch

- Weather technicians will notify the tower as soon as possible, whenever the prevailing visibility at the official weather observation point decreases to less than, or increases to equal or exceed **4 miles**
- Re-evaluate surface prevailing visibility, as soon as practicable, upon initial receipt of a differing control tower value, and upon receipt of subsequent reportable changes at the control tower level
- Weather personnel will use control tower values of prevailing visibility as a **guide*** in determining surface visibility when the view of portions of the horizon is obstructed by buildings, aircraft, etc.

AFMAN15-111 (10March2009) states Tower Visibility can be reported as an optional remark in manual observations only

Visibility

- ATC regulations require control towers to maintain a visibility checkpoint chart or list of visibility markers posted in the tower
- Upon request, weather units will provide whatever assistance is necessary to help prepare a chart or markers of suitable objects for determining tower visibi

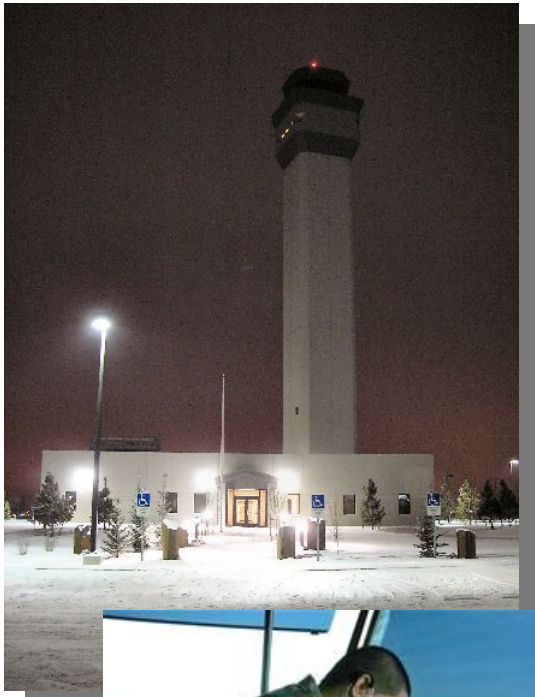


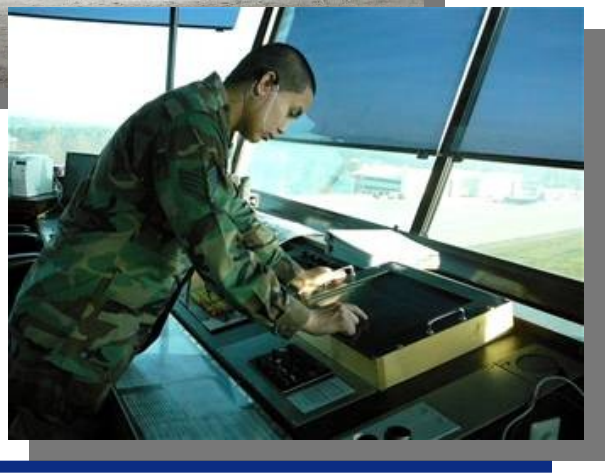
Visibility Definitions

- **Visibility**: Greatest horizontal distance at which selected objects can be seen and identified
- **Prevailing Visibility**: Visibility considered to be representative of the visibility conditions at the official observing point--for manual observations (KGRK) this representative visibility is the greatest visibility equaled or exceeded throughout at least half the horizon circle (not necessarily continuous)
- **Sector Visibility**: Visibility in a specified direction that represents at least a 45 degree arc (portion) of the horizon circle
- **Surface Visibility**: Prevailing visibility determined from the designated point(s); normally represents a value observed at a height of 6 feet above the ground
- **Tower Visibility**: Prevailing visibility determined from the control tower

Visibility Determination

- IAW AFMAN15-111 Tower Visibility may be reported in remarks of manual observations (when tower visibility is **> 4 miles** and is different from surface visibility by a reportable value)
  - Example: TWR VIS 1 ½
  - Encoding of Tower Visibility is optional in manual surface observations (aligns with automated observing systems)





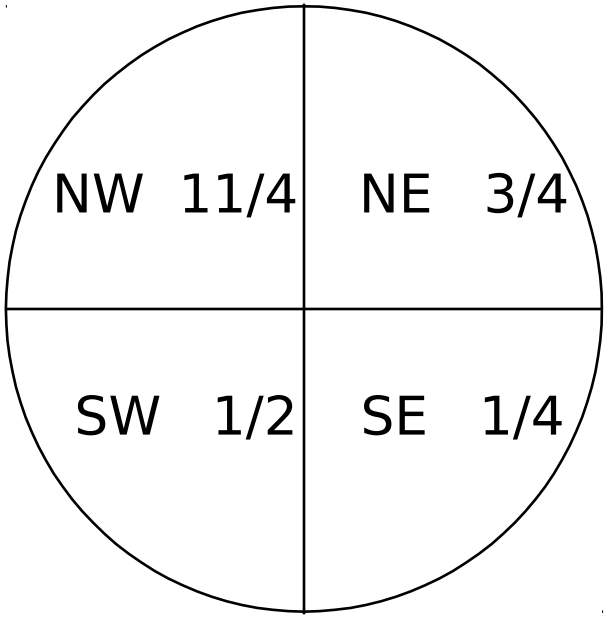
Visibility Determination

- Use all available markers to determine greatest visibility in each direction around the horizon circle
- Before taking visibility observations at night, spend as much time as practicable in the darkness to allow your eyes to become accustomed to limited light
- Evaluate visibility as frequently as practical; using all available visibility markers, determine the greatest distances that can be seen in all directions around the horizon circle

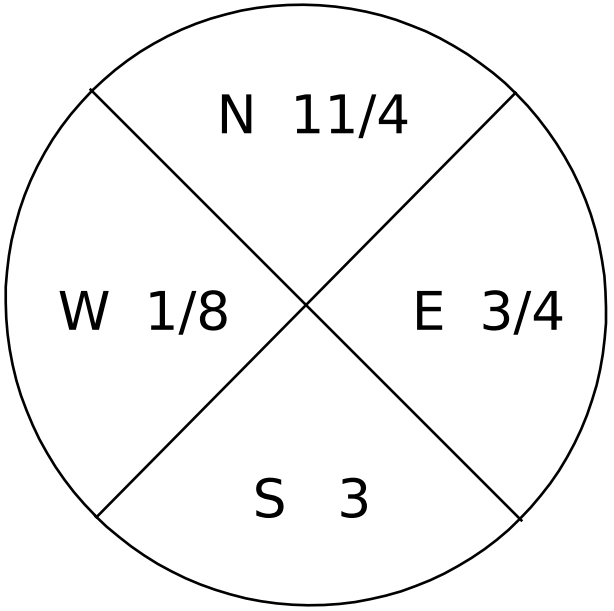
Visibility Determination

- Estimate farthest distance seen in each direction when visibility is greater than the farthest marker(s)
  - Base this estimate on appearance of all visibility markers
    - If they are visible with sharp outlines and little blurring of color, the visibility is much greater than the distance to them
    - If a marker can barely be seen and identified, the visibility is about the same as the distance to the marker
  - The silhouette of mountains and hills against the sky and the brilliance of stars near the horizon may provide a useful guide to the general clarity of the atmosphere

Visibility Determination



PREVAILING VIS IS: 3/4
SECTOR VIS IS:
SE 1/4 SW 1/2 NW 1 1/4



PREVAILING VIS IS: 11/4
SECTOR VIS IS:
E 3/4 S 3 W 1/8

Visibility Determination

- **VIS reportable values**
  - 0 -- 3/8 in 1/16 mile increments
  - 1/2 -- 2 in 1/8 mile increments
  - 2 -- 3 in 1/4 mile increments
  - 3 -- 7 in 1 mile increments

Significant Weather

- Tornado – A violent, rotating column of air **touching the ground**; it forms a pendant, usually from a cumulonimbus cloud
- Funnel Cloud – A violent rotating column of air that ***does not*** **touch the grou**

Significant Weather

Remarks in Observations

- Use of remarks in manual observations IAW:
  - AFMAN15 -111
  - FAA handbook 7340.1.
    - Use of remarks in 7340.1 will be given a priority of (National Weather Service (NWS), General (GEN), and ATC
  - Direction will be to 8 points of the compass

(i.e., LTG DSNT NW)

METAR CODE
(Observation)

KGRK METAR 1255Z 24008KT 7 FEW035 SCT100 BKN250 29/22 ALSTG 30.17 RMK CB DSNT NW MOV SW PA +800 DA +2000 56/BS

- **KGRK**: Location identifier for RGAAF
- **METAR**: Type of observation (may also be SPECI or LOCAL)
- **1255Z**: Time of observation (UTC)
- **24008KT**: Wind direction from 240 degrees (magnetic) at 08 knots
- **7**: Prevailing visibility (statute miles)
- **FEW035**: Clouds less than 3/8th total cloud cover at 3,500 feet AGL
- **SCT100**: Clouds 3/8 to 4/8ths total cloud cover at 10,000 feet AGL
- **BKN250**: Clouds 5/8 to 7/8ths total cloud cover at 25,000 feet AGL
- **29/22**: Temperature & dew point (degrees Celsius)
- **ALSTG 30.17**: Altimeter setting (inches of mercury)
- **RMK**: Significant remarks - cumulonimbus (thunderstorm) distant northwest
  - **PA +800**: Pressure altitude (feet)
  - **DA +2000**: Density altitude (feet)
- **56/BS**: Time observation entered in N-TFS & technician's initials

Terminal Aerodrome Forecast (TAF) CODE

KGRK FCST 1316-1416 16015KT 7 FEW030 SCT250
ALSTG30.17INS
BECMG 21-22 16015G25KT 5 -SHRA BKN030 OVC250
ALSTG30.09INS
LGT TURBC SFC-030
TEMPO 00-03 VRB25G35KT 1 +TSRA BKN015CB OVC030
TEMP 24C AT 2200Z TEMP 16C AT 1200Z 05/NJ

- **KGRK**: Location identifier for RGAAF
- **FCST**: 24 hour forecast
- **1316-1416**: Forecast valid 13th 1600Z to 14th 1600Z (UTC)
- **16015KT**: Forecast wind direction (from) and speed (knots)
- **7**: Forecast prevailing visibility (statue miles)
- **FEW030**: Clouds less than 3/8th total cloud cover at 3,000 feet AGL
- **SCT250**: Clouds 3/8 to 4/8ths total cloud cover at 25,000 feet AGL
- **ALSTG30.17INS**: Forecast minimum altimeter setting (inches of mercury)
- **BECMG 21-22**: Forecast gradual change between 2100 and 2200Z
- **16015G25KT**: Forecast wind direction/speed/gusts (knots)
- **5 -SHRA**: Prevailing visibility (statue miles) in light rain showers

Terminal Aerodrome Forecast (TAF) CODE

KGRK FCST 1316-1416 16015KT 7 FEW030 SCT250
ALSTG30.17INS
BECMG 21-22 16015G25KT 5 -SHRA BKN030 OVC250
ALSTG30.09INS
LGT TURBC SFC-030
TEMPO 00-03 VRB25G35KT 1 +TSRA BKN015CB OVC030
TEMP 24C AT 2200Z TEMP 16C AT 1200Z 05/NL

- **BKN030**: Clouds 5/8 to 7/8ths total cloud cover at 3,000 feet AGL
- **OVC250**: Clouds 8/8 total cloud cover at 25,000 feet AGL
- **ALSTG30.09INS**: Forecast minimum altimeter setting (inches of mercury)
- **LGT TURBC SFC-030**: Light turbulence surface - 3,000 feet AGL
- **TEMPO 00-03**: Forecast temporary condition between 0000Z and 0300Z
- **VRB25G35KT**: Forecast wind direction/speed/gusts (knots)
- **1 +TSRA**: Prevailing visibility (statue miles) in thunderstorm with heavy rain
- **BKN015CB**: Clouds 5/8 to 7/8ths total cloud cover at 1,500 feet AGL with cumulonimbus cloud (thunderstorm)
- **OVC030**: Clouds 8/8 total cloud cover at 3,000 feet AGL
- **TEMP 24C AT 2200Z**: Forecast maximum temperature and time.
- **TEMP 16C AT 1200Z**: Forecast minimum temperature and time.

Terminal Weather Advisory

FORT HOOD TERMINAL WEATHER ADVISORY #08-003
VALID 20/1830Z (20/1330L) TO UFN (UFN)
SURFACE WIND GREATER THAN OR EQUAL TO 30 KNOTS AT RGAAF AND HAAF.
FORECASTER: AB

- **#08-003**: 3d weather advisory issued by 3 WS August
- **VALID 20/1830Z (20/1330L) TO UFN (UFN)**: Advisory valid until further notice (observed condition)
- **SURFACE WIND GREATER THAN OR EQUAL TO 30 KNOTS AT RGAAF AND HAAF.**
- **FORECASTER: AB**: Forecaster's initials

Weather Watch

26th OWS IWWC WEATHER WATCH FOR FORT HOOD (KGRK) #09-A008
VALID 02/1500Z (02/1000L) TO 02/2300Z (02/1800L)
POTENTIAL EXISTS FOR DAMAGING WIND >= 50 KTS AND LARGE HAIL >= 3/4 IN.
THIS WATCH IS VALID FOR THE ENTIRE FORT HOOD RESERVATION. A WEATHER WARNING WILL BE ISSUED LATER, IF REQUIRED.
FORECASTER: DO

- **26th OWS IWWC WEATHER WATCH FOR FORT HOOD (KGRK) #09-A008:** 8th weather watch issued by 26 OWS for Fort Hood for September
- **VALID 02/1500Z (02/1000L) TO 02/2300Z (02/1800L):** Forecast valid time of the watch conditions
- **POTENTIAL EXISTS FOR DAMAGING WIND >= 50 KTS AND HAIL >= 3/4 IN. THIS WATCH IS VALID FOR THE ENTIRE FORT HOOD RESERVATION. A WEATHER WARNING WILL BE ISSUED LATER, IF REQUIRED.:** Specific Watch criteria.
- **FORECASTER: DO:** Forecaster's initials

Weather Warning

26th OWS IWWC WEATHER WARNING FOR FORT HOOD (KGRK) #04-C005
VALID 09/1500Z (09/0900L) TO 09/2300Z (09/1700L)
DAMAGING WINDS >= 50 KTS ARE FORECASTED TO OCCUR AT FORT HOOD. MAXIMUM EXPECTED 60 KTS. LARGE HAIL >= 3/4 IN IS FORECASTED TO OCCUR AT FORT HOOD. MAXIMUM MAX EXPECTED 1 INCH. FG

- **26th OWS IWWC WEATHER WARNING FOR FORT HOOD (KGRK) #04-C005:** 5th weather warning issued by 26 OWS for Fort Hood for April
- **VALID 09/1500Z (09/1000L) TO 09/2300Z (09/1800L):** Forecast valid time of warning conditions
- **DAMAGING WINDS >= 50 KTS ARE FORECASTED TO OCCUR AT FORT HOOD. MAXIMUM EXPECTED 60 KTS. LARGE HAIL >= 3/4 IN IS FORECASTED TO OCCUR AT FORT HOOD. MAXIMUM MAX EXPECTED 1 INCH:** Specific warning criteria to include maximum forecast.
- **FORECASTER: FG:** Forecaster's initials

Weather Warning

WEATHER WARNING FOR FORT HOOD (KGRK) #07-010
VALID 25/1500Z (09/0900L) TO UFN (UFN)
A LIGHTNING WARNING IS ISSUED FOR THE ENTIRE FORT HOOD RESERVATION. (THIS INCLUDES LIGHTNING WITHIN 5N/M OF HOOD AND GRAY AAFS). LIGHTNING HAS BEEN OBSERVED IN THIS AREA.
FORECASTER: CRZ

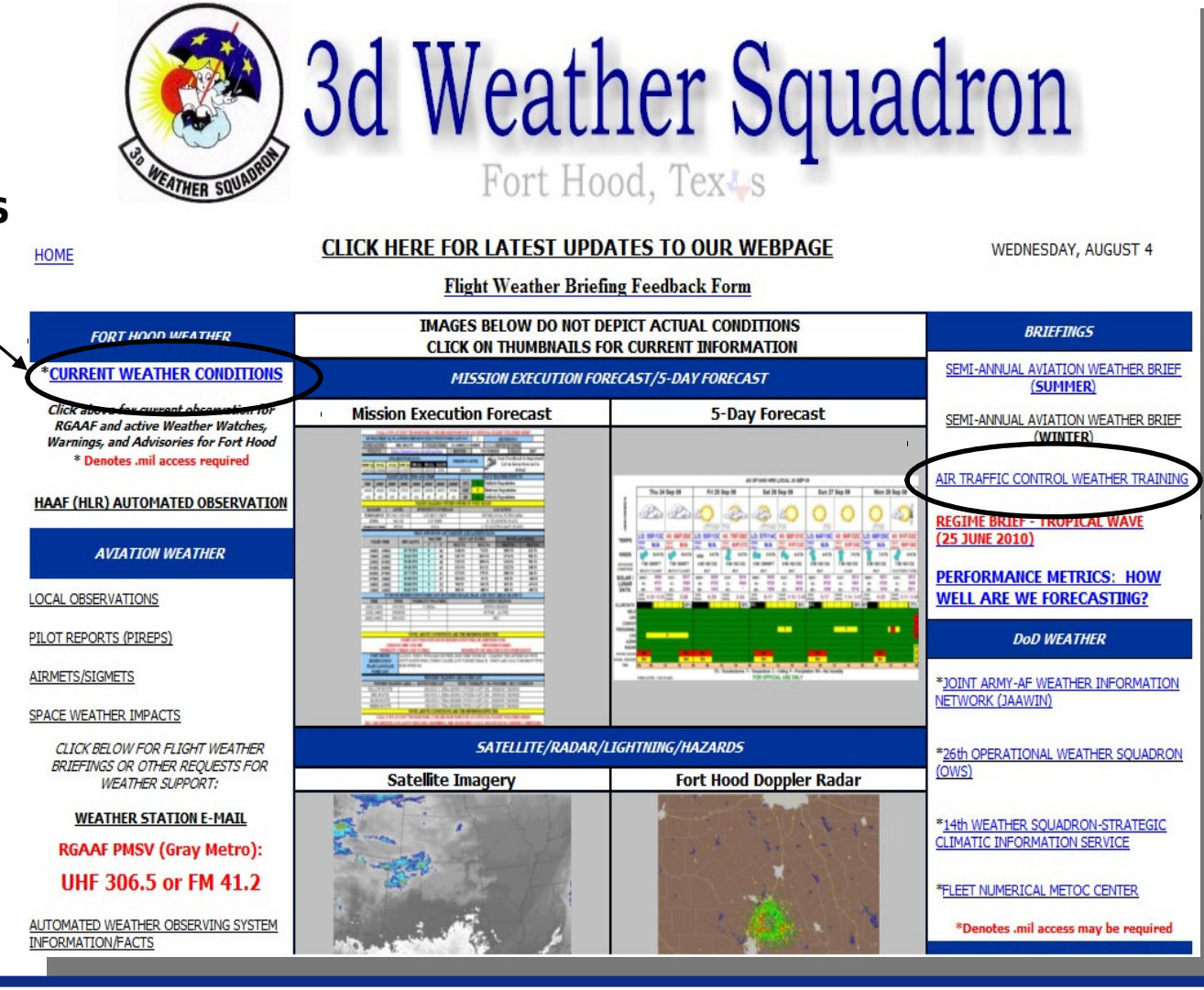
- **WEATHER WARNING FOR FORT HOOD (KGRK) #07-010**: Tenth weather warning issued by 3 WS for Fort Hood for month of July
- **VALID 25/1500Z (25/1000L) TO UFN (UFN):** Warning valid until further notice (observed conditions)
- **A LIGHTNING WARNING IS ISSUED FOR THE ENTIRE FORT HOOD RESERVATION. (THIS INCLUDES LIGHTNING WITHIN 5N/M OF HOOD AND GRAY AAFS). LIGHTNING HAS BEEN OBSERVED IN THIS AREA.:** Specific watch criteria
- **FORECASTER: CRZ:** Forecaster's initials

Summary

- **Today you have learned about…**
  - RGAAF & HLR Observation Procedures
  - Cooperative Weather Watch
  - Visibility
    - Definitions
    - Determination methods
  - Significant Weather / Remarks
  - METAR / TAF codes
  - Examples of Weather Advisories / Watches / Warnings

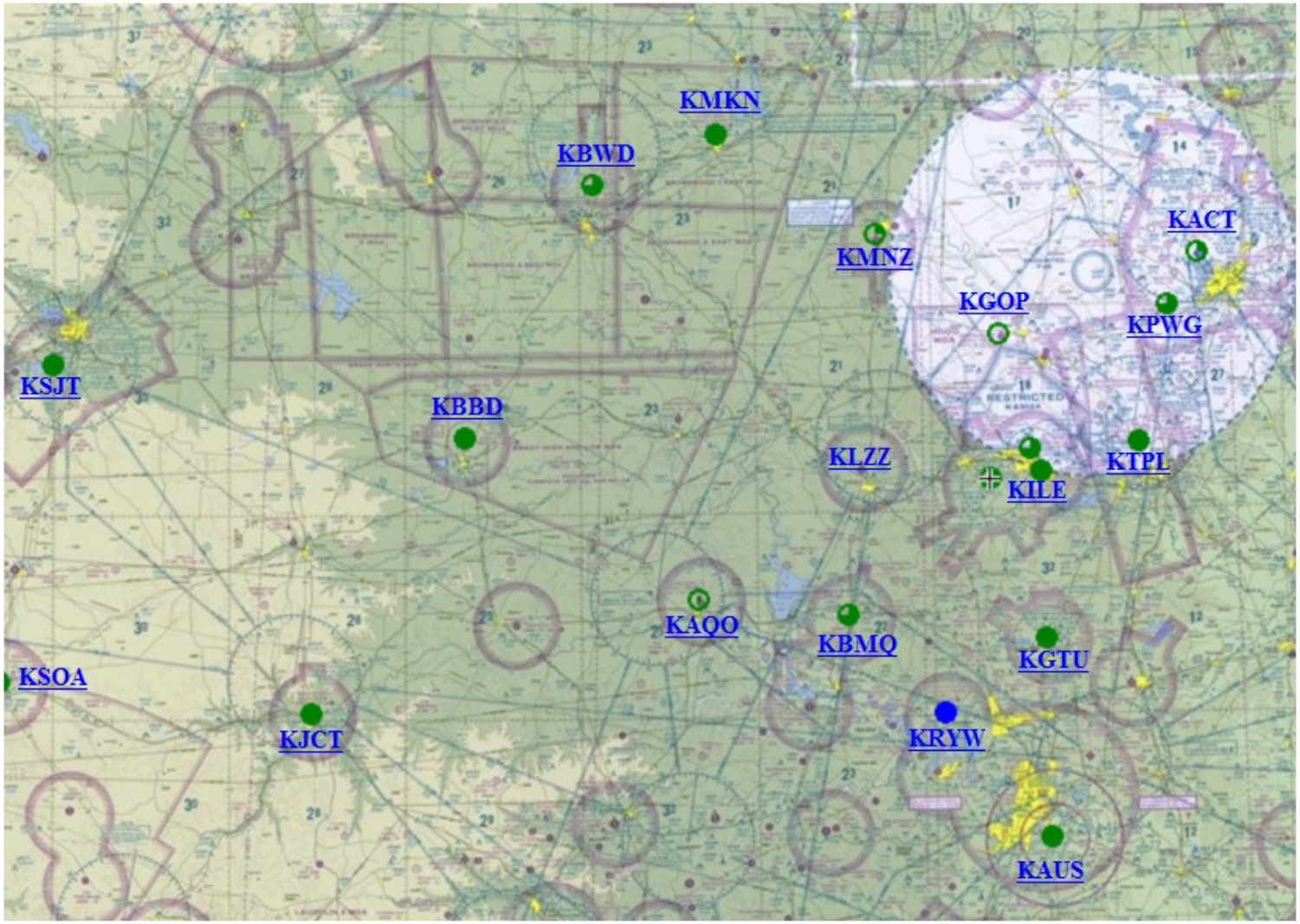
3 WS Webpage
www.hood.army.mil/3ws

Links to N-TFS


3d Weather Squadron
Fort Hood, Texas
HOME
CLICK HERE FOR LATEST UPDATES TO OUR WEBPAGE
WEDNESDAY, AUGUST 4
Flight Weather Briefing Feedback Form
FORT HOOD WEATHER
*CURRENT WEATHER CONDITIONS
Click above for current observation for RGAAF and active Weather Watches, Warnings, and Advisories for Fort Hood
* Denotes .mil access required
HAAF (HLR) AUTOMATED OBSERVATION
AVIATION WEATHER
LOCAL OBSERVATIONS
PILOT REPORTS (PIREPS)
AIRMETS/SIGMETS
SPACE WEATHER IMPACTS
CLICK BELOW FOR FLIGHT WEATHER BRIEFINGS OR OTHER REQUESTS FOR WEATHER SUPPORT:
WEATHER STATION E-MAIL
RGAAF PMSV (Gray Metro):
UHF 306.5 or FM 41.2
AUTOMATED WEATHER OBSERVING SYSTEM INFORMATION/FACTS
IMAGES BELOW DO NOT DEPICT ACTUAL CONDITIONS
CLICK ON THUMBNAILS FOR CURRENT INFORMATION
MISSION EXECUTION FORECAST/5-DAY FORECAST
Mission Execution Forecast
5-Day Forecast
SATELLITE/RADAR/LIGHTNING/HAZARDS
Satellite Imagery
Fort Hood Doppler Radar
BRIEFINGS
SEMI-ANNUAL AVIATION WEATHER BRIEF (SUMMER)
SEMI-ANNUAL AVIATION WEATHER BRIEF (WINTER)
AIR TRAFFIC CONTROL WEATHER TRAINING
REGIME BRIEF - TROPICAL WAVE (25 JUNE 2010)
PERFORMANCE METRICS: HOW WELL ARE WE FORECASTING?
DoD WEATHER
*JOINT ARMY-AF WEATHER INFORMATION NETWORK (JAAWIN)
*26th OPERATIONAL WEATHER SQUADRON (OWS)
*14th WEATHER SQUADRON-STRATEGIC CLIMATIC INFORMATION SERVICE
*FLEET NUMERICAL METOC CENTER
*Denotes .mil access may be required

This briefing

Local Observations



Feedback

- Any feedback you can provide will be greatly appreciated and will help us improve your training and the safety of all of our customers; aircraft or otherwise

Weather Operations Center (WOC)

WOC Flight Chief: **288-9166**

Forecaster(s): **288-9620 or 288-9400**

Questions?

PILOTS
WEATHER FORECASTING STONE
Condition
Forecast
Stone is Wet
Rain
Stone is Dry
Not Raining
Shadow on Ground
Sunny
White on Top
Snowing
Can't See Stone
Foggy
Swinging Stone
Windy
Stone Jumping Up & Down
Earthquake
Stone Gone
Tornado